

MR2919-17
Serial Number: 09/416,098
Responsive to Office Action dated 25 January 2006

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MAY 25 2006

AMENDMENT TO THE CLAIMS

This Listing of Claims will replace all prior versions, and listings, of claims
in the subject Patent Application:

Listing of Claims:

1. (Currently amended) A device adapted to be used in a
communication system, the communication system using one of OFDM, NBFDM,
DMT, FDMA and TDMA, comprising: in which

a first transceiver unit operable to communicates in continuous bi-
directional manner for the direct exchange of information with a second
transceiver unit using a common frequency; ~~the device comprising:~~

means for detecting responsive to a continuous comparison of
received and detected signals an comparative offset between respective common
frequency references used locally by the first and second transceiver units in a
first signal transmitted by the first transceiver unit and received by the second
transceiver unit disposed remotely therefrom; and

means for adjusting the common frequency in accordance with the
offset detected responsive to the continuous comparison of received and detected
signals in a second signal to be transmitted by the second transceiver unit and to
be received by the first transceiver unit to correct for an error in the carrier
frequency reference used locally at the first transceiver unit, so that the effects of
the offset to be perceived by the first transceiver unit will be substantially reduced

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in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the first transceiver unit.

2. (Original) A device according to claim 1, wherein the common frequency is a carrier frequency.

3. (Cancelled).

4. (Original) A device according to claim 2, wherein the means for detecting the offset includes means for performing a correlation on a digital representation of the first signal so as to lock onto the offset in the carrier frequency.

5. (Original) A device according to claim 2, wherein the means for adjusting the common frequency includes a means for digitally shifting data in frequency to be transmitted in accordance with the carrier frequency and the offset.

6-7. (Cancelled).

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8. (Original) A device according to claim 2, wherein the means for detecting the offset includes means for locking onto the offset in the carrier frequency and for producing an output signal corresponding thereto.

9. (Original) A device according to claim 8, wherein the means for adjusting the common frequency includes means for variably adjusting a reference frequency output by a crystal oscillator in accordance with the output signal generated by the locking means.

10-14. (Cancelled).

15. (Currently amended) A method adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA, the method comprising: in which

a first transceiver unit operable to communicate in continuous bi-directional manner for the direct exchange of information with a second transceiver unit using a common frequency; ~~the method comprising:~~

detecting responsive to a continuous comparison of received and detected signals an comparative offset between respective common frequency references used locally by the first and second transceiver units in a first signal

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transmitted by the first transceiver unit and received by the second transceiver unit
disposed remotely therefrom; and,

adjusting the common frequency in accordance with the offset detected responsive to continuous comparison of received and detected signals in a second signal to be transmitted by the second transceiver unit and to be received by the first transceiver unit to correct for an error in the carrier frequency reference used locally at the first transceiver unit, so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the first transceiver unit.

16. (Original) A method according to claim 15, wherein the common frequency is a carrier frequency.

17. (Canceled).

18. (Original) A method according to claim 16, wherein the step of detecting the offset includes performing a correlation on a digital representation of the first signal so as to lock onto the offset in the carrier frequency.

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19. (Original) A method according to claim 16, wherein the step of adjusting the common frequency includes digitally shifting data in frequency to be transmitted in accordance with the carrier frequency and the offset.

20-21. (Cancelled).

22. (Original) A method according to claim 16, wherein the step of detecting the offset includes locking onto the offset in the carrier frequency and producing an output signal corresponding thereto.

23. (Original) A method according to claim 22, wherein the step of adjusting the common frequency includes variably adjusting a reference frequency output by a crystal oscillator in accordance with the output signal generated by the locking means.

24-28. (Cancelled).

29. (Currently amended) A device adapted to be used in a first transceiver unit that can communicate with a second transceiver unit using a common carrier frequency, the device comprising:

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a frequency lock loop that is coupled to receive a digital representation of a first signal transmitted by the second transceiver unit, the frequency lock loop being adapted to detect a comparative carrier frequency offset in the first signal and to produce offset information corresponding thereto indicative of an offset between respective common frequency references locally used at the first and second transceiver units; and

a frequency shift block that is coupled to receive the offset information and digital data to be transmitted by the first transceiver unit in a second signal to be received by the second transceiver unit disposed remotely therefrom, the frequency shift block being adapted to digitally shift the digital data in frequency in accordance with the common carrier frequency and the carrier frequency offset to correct for an error in the carrier frequency reference used locally at the second transceiver unit, so that the effects of the carrier frequency offset to be perceived by the second transceiver unit will be substantially reduced in preemptive manner for continuous wireless bi-directional communication between the first and second transceiver units for the direct exchange of information.

30. (Canceled).

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31. **(Currently amended)** A device adapted to be used in a first transceiver unit that can communicate with a second transceiver unit disposed remotely therefrom using a common carrier frequency, the device comprising:

a frequency lock loop that is coupled to receive a digital representation of a first signal transmitted by the second transceiver unit, the frequency lock loop being adapted to detect a comparative carrier frequency offset in the first signal and to produce an analog offset signal corresponding thereto indicative of an offset between respective common frequency references locally used at the first and second transceiver units;

a crystal oscillator that supplies a reference frequency for modulating a second signal to be perceived by the second transceiver unit in accordance with the common carrier frequency; and

a variably adjustable device coupled to receive the offset signal and to the crystal oscillator, the variably adjustable device being adapted to adjust the reference frequency of the crystal oscillator in accordance with the offset signal to correct for an error in the carrier frequency reference used locally at the second transceiver unit, so that the effects of the carrier frequency offset in the second signal to be perceived by the second transceiver unit will be substantially reduced in preemptive manner for continuous wireless bi-directional communication between the first and second transceiver units for the direct exchange of information.

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32-33. (Cancelled).

34. (Currently amended) A device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA, the device comprising: in which

a first transceiver unit operable to communicates in continuous bi-directional manner for the direct exchange of information with a second transceiver unit using a common frequency; ~~the device comprising:~~

means for detecting responsive to a continuous comparison of received and detected signals an comparative offset between respective common frequency references used locally by the first and second transceiver units in a first signal transmitted by the first transceiver unit and received by the second transceiver unit disposed remotely therefrom;

means for communicating information corresponding to the detected offset from the second transceiver unit to the first transceiver unit ; and,

means for adjusting the common frequency in accordance with the offset detected responsive to continuous comparison of received and detected signals in a second signal to be transmitted by the first transceiver unit and to be received by the second transceiver unit to correct for an error in the carrier frequency reference used locally at the second transceiver unit, so that the effects

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of the offset to be perceived by the second transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the second transceiver unit.

35. (Currently amended) A device adapted to be used in a communication system, the communication system using one of OFDM, NBFDM, DMT, FDMA and TDMA, the device comprising: in which

a first transceiver unit operable to communicates in continuous bi-directional manner for the direct exchange of information with a second transceiver unit using a common frequency; ~~the device comprising:~~

means for detecting responsive to a continuous comparison of received and detected signals an comparative offset between respective common frequency references used locally by the first and second transceiver units in a first signal transmitted by the first transceiver unit and received by the second transceiver unit disposed remotely therefrom;

means for communicating information corresponding to the detected offset from the second transceiver unit to the first transceiver unit; and,

means for adjusting the common frequency in accordance with the offset detected responsive to continuous comparison of received and detected signals in a second signal to be transmitted by the second transceiver unit and to

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be received by the first transceiver unit to correct for an error in the carrier frequency reference used locally at the first transceiver unit, so that the effects of the offset to be perceived by the first transceiver unit will be substantially reduced in preemptive manner, the second signal to be transmitted being thereby adjusted to be in substantial frequency lock with the common frequency reference of the first transceiver unit.